

UCIT Series Mobile DVR

User's Manual

4-Channel Industry-Grade HD Mobile DVR Integrating 3G, Wi-Fi, GPS and Voice Conversation



V2.2

Contents

1. Product Introduction	4
1.1. Overview	5
1.2. Specifications	5
1.2.1. Specifications	5
1.3. Requirments	6
2. Appearance and Accessories	7
2.1. Front Panel Definitions	8
2.1.1. LED Indicator	8
2.1.2. Other Definitions	8
2.2. Rear Panel Definitions	9
2.3. Definitions of External Cables	9
2.3.1. Power Cable	9
2.3.2. Audio/Video Input/output Cables	10
2.3.3. GPS Module	10
2.3.4. 3G, Wi-Fi Antenna	10
2.3.5. Extension Cables	11
2.4. Infrared Remote Controller	12
3. Storage Media Installation and Replacement	Error! Bookmark not defined.
3.1. Hard drive Installation	133
3.2. SD Card Installation	14
3.3. Antenna Installation	15
4. OSD Menu Overview	16
4.1. Menu Structure	16
4.2. User Login	17
4.3. Main Menu	17
4.4. Video Playback	18
4.5. System Setup	19
4.5.1. Basic Setup	19
4.5.2. Recording Setup	20
4.5.3. Startup/Shutdown Setup	20
4.5.4. Alarm Setup	21
4.5.5. Security Setup	24
4.5.6. Network Setup	24
4.6. System Information	26
4.7. Management Tools	26
4.7.1. Log Management	27
4.7.2. Disk Management	27
4.7.3. Factory Settings	29
4.7.4. Configuration Management	29
4.7.5. PTZ Management	30
4.7.6. OSD Setup	30
4.7.7. System Upgrading	31

4.7.8. Serial Ports Management	31
4.8. Shortcuts Keys	32
4.8.1. F1 Status Menu	32
4.8.2. F2 Status Menu (No status menu is shown by pressing F2)	32

1. Product Introduction

1.1. Overview

UCIT series is a high-end Mobile DVR (MDVR) dedicated for mobile surveillance of your fleet, applying high-speed processor and embedded operating system integrating various state-of-the-art technologies. Features include audio/video codec technologies, large-capacity hard drive storage technologies, streaming media network technologies.

Product picture:



1.2. UCIT Technical Overview

1.2.1. Specifications

Item		Description
OS		Linux
Graphical User Interface (GUI)		System parameters can be modified through an external display and included remote controller
Security Management		Two Level management for user password, administrator password, supporting encrypted transmission
Video	Input/Output	4-channel video input, 1channel video output; 1.0Vp-p, 75Ω
	OSD	Character superposition function, information superposition of time and date, device ID and GPS, etc.
	Video Compression Format	H.264
	Dual-Stream	Supported (3G and WiFi)
	Frame Rate	PAL: 100 frames/s, up to 25 frames/s per channel; NTSC: 120 frames/s, up to 30 frames/s per channel
	Resolution	CIF, HD1 and D1 for selection, supporting 2 channels of D1+ 2 channels of CIF at the most
	Bit Rate	CIF: 256Kbps ~ 1.5 Mbps, 8-level bit rates for selection HD1: 600Kbps ~ 2 Mbps, 8-level bit rates for selection D1: 800Kbps ~ 3Mbps, 8-level bit rates for selection
Audio	Input/Output	4 Channel input, 1 Channel output
	Compression Format	G.726 codec
Recording	Storage Medium	Supports one 2.5" hard drive (up to 1TB) and one SD card (up to 32GB) for data redundancy storage technology;
	File Format	ASF/FAT32
	Video Strategies	System Startup (default), timed recording, recording triggered by alarm and event, manual recording
	Video Search	Searching by time, type, storage device and other conditions
	Video Playback	Playback on local device using connected external monitor All general playback functions
Alarm	Alarm Input/Output	6-channel on/off signal alarm input, 1-channel on/off signal alarm output
	Alarm Recording	Prerecording function 15 seconds before alarm, duration of recording after alarm can be adjusted from 30s ~ 30min
Communication Ports		RS232, RJ45 10M/100M self-adaptable network interface
Wireless Transmission		Embedded 3G wireless transmission module, WCDMA, CDMA2000, GPRS, EDGE Embedded Wi-Fi module;
GPS		Supporting external GPS

PTZ Control		Supporting PTZ control realized by local ad client software;
Parameter Configuration		Supporting parameter configuration functions for mobile DVR coding channel;
G-Sensor		Embedded Accelerometer
Power	Input Voltage	8VDC - 36VDC
	Output Voltage	+12V@4*0.5A; +5V@0.5A
	Power Consumption	<10W in normal operation; <0.5W in standby mode
Operating Environment	Temperature	Normal Operating Temperature: 0-60 degrees Centigrade
	Humidity	10% to 95% Relative Humidity
Dimensions		160(W) x62(H) x200(D) mm.
Weight		Net: 2200g, Gross: 3500g

1.3. Installation

1.3.1. Requirements

To ensure operator safety, device stability and extended service life, please follow the below guidelines when installing and operating the device:

- 1) Power supply and grounding:
 - a) The direct input range of the power supply of the device is from 8VDC to 36VDC.
 - b) The device has internal capacitors that store power. Please disconnect all power and wait 5 minutes before connecting any cameras, alarm inputs, or external monitors.
 - c) Do not connect any other device in series with the UCIT.
 - d) For Alarm Input Signals, 2VDC or less is a low input and 5VDC-30VDC is high input. 2.1VDC-4.9VDC are not supported.
 - e) Ensure ground on power harness is directly connected to chassis ground.
- 2) Humidity requirements:
 - a) The device should be installed in dry environment avoiding moisture. Do not install the device in locations with the possibility of water accumulation.
- 3) Installation locations:
 - a) Physical location of installation should be in a secure location with the least amount of vibration possible.
 - b) All power, camera, and alarm harness cables should be ran and protected to prevent chafing, short-circuits, or other damage.
 - c) Avoid direct sunlight exposure.
 - d) Unit is to be installed either vertically or horizontally.

2. Product Appearance

Front View:



Back View:



2.1. Front Panel Definitions



2.1.1. LED Indicator

- [PWR]Power Indicator
 - Solid: Unit is powered on
- [ALM]Alarm indicator.
 - Flashing: Unit is recording an active alarm
- [REC]Recording indicator:
 - Flashing: Unit is recording
- [HD]Hard drive indicator:
 - Solid: HDD has been successfully detected and loaded
 - Not Illuminated: HDD has not been detected or has failed
 - Flashing: HDD is recording
- [SD]SD card indicator:
 - Solid: SD card has been successfully detected and loaded
 - Not Illuminated: SD card has not been detected or has failed
 - Flashing: SD card is recording
- [GPS]GPS signal indicator.
 - Solid: GPS lock has been obtained
- [ERR]Error indicator.
 - If illuminated, contact Safety Track Support
- [V-Loss]Video loss indicator:
 - Flashing: One or more cameras are not detected
- [HTR]Heating indicator.
 - Flashing: Optional HDD heater is running
- [NET]Network indicator.
 - Solid: Network is connected to back-end server

2.1.2. Other Definitions

- [IR]IR receiver for remote controller.
- [LOCK]Hard drive security lock. Note: The device can only be powered on once HDD sled is locked into position. If unit is not locked, the unit will shut off on power-up.
- [MIC]MIC input.
- [EAR]External Speaker output.

2.2. Rear Panel Definitions



- [PWR]Power Supply Harness.
- [GPS]GPS Antenna Harness.
- [EXTEND I/O]Alarm Input/Output Harness.
- [RJ45]Network interface.
- [AV IN]Audio/video input interface.
- [AV OUT]Audio/video output interface.
- [WI-FI]WiFi Antenna Connection.
- [3G]3G Antenna Connection.

2.3. Cable Harnesses

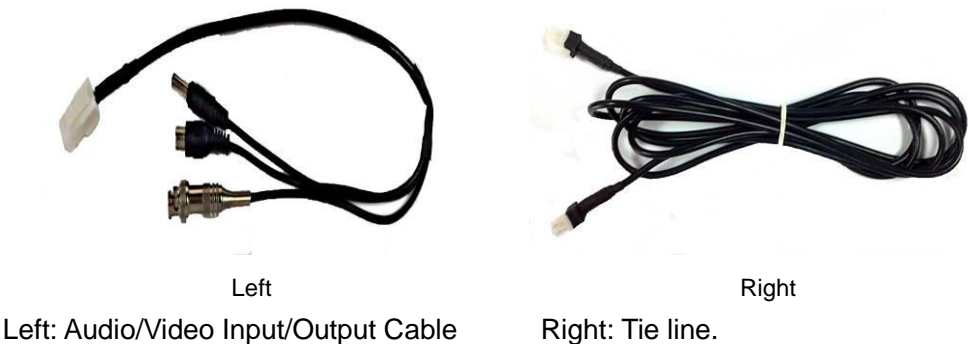
2.3.1. Power Cable



Power Harness

Wire Color	Connection	Description
Black	BAT-	Ground
Red	BAT+	Positive 8VDC-36VDC Constant
Yellow	ACC	Positive 8VDC-36VDC Switched

2.3.2. Audio/Video Input/Output Cables



Left: Audio/Video Input/Output Cable

Right: Tie line.

Interface	Name	Description
Video Input	VID1-VID4	Camera Input
Audio/video output	AVOUT	Audio/Video output

2.3.3. GPS Module

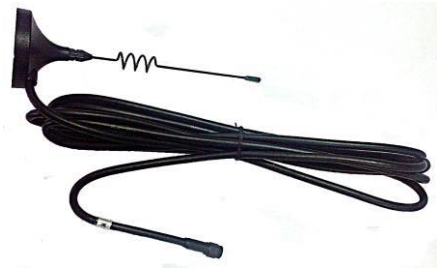


GPS module antenna

2.3.4. 3G, Wi-Fi Antenna

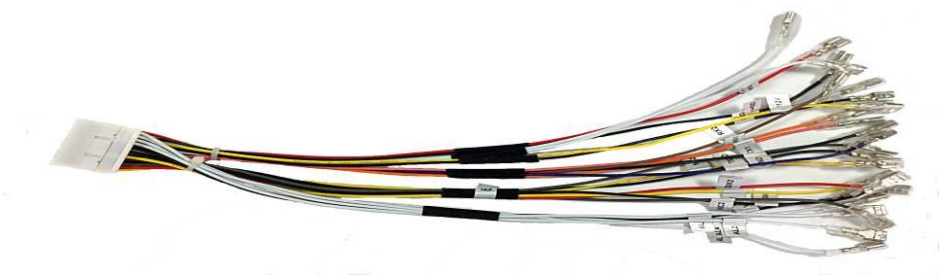


3G antenna



Wi-Fi antenna

2.3.5. Extension Cables



Extension cables

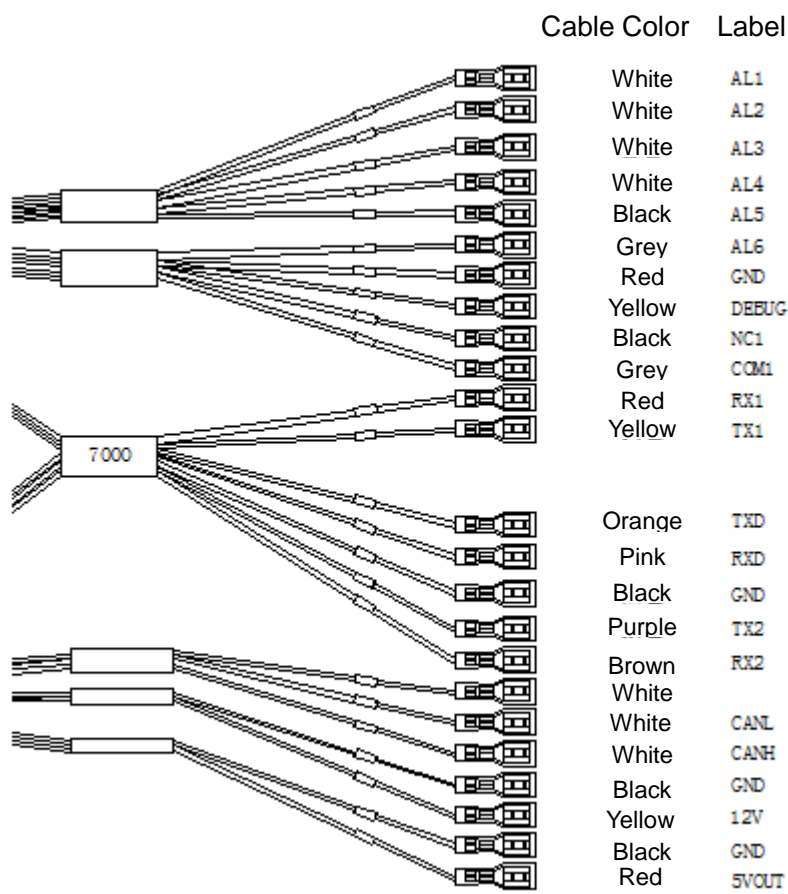










Diagram of Extension Cables

2.4. Infrared Remote Controller

Key	Function	Image
	Remote on.	
[LOGIN]	Login to On Screen Display (OSD)	
[0-9]	[0-9] keys: In the setting menus, the numeric keys are used for numerical input. During video playback, numbers 1-4 are used for switching between single windows of channels 1-4, number 5 is used for switching to synchronous playback of all 4 channels.	
[−][+]	Cursor Scrolling; Setting Selction	
[DEL]	Delete	
[EXIT]	Exits to the previous menu or returns to the main menu.	
[ENTER]	Confirms parameter selection and settings as well as operations like play.	
▲, ▼, ◀, ▶	Arrow keys that move the cursor upward, downward, leftward and rightward. The left and right keys are used for increasing and decreasing the volume during surveillance playback.	
[GOTO]	Plays the video from the selected time.	
[INFO]	Displays system information in the surveillance status.	
	Rewind	
	Play	
	Fast Forward	
	Starts recording in manual recording mode.	
	Stops recording in manual recording mode. Stops playing the video in playback mode.	
	Pauses during playback.	
[F1]	Displays information like acceleration GPS, Wi-Fi, 3G module, SIM card, dialing, online, etc. in the surveillance menu. This function is used for UCITB.	
[F2]	Monitors single channel and displays PTZ information.	
[F3]	Reserved for future use	

3. Storage Media Installation and Replacement

3.1. Hard Drive Installation

Step 1. Unlock the hard drive and remove the hard drive sled.

Step 2. Remove the bolts (7 in total) as outlined below

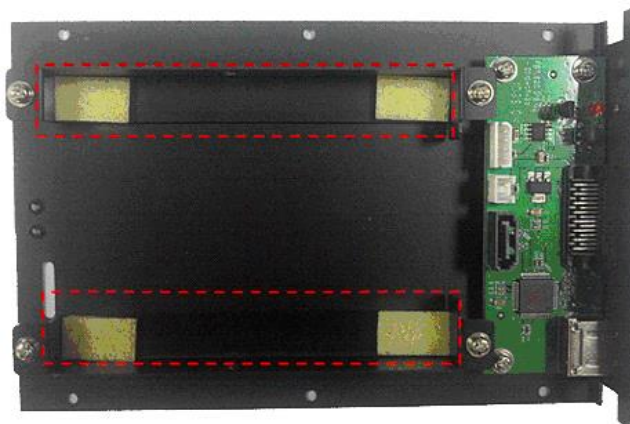


Remove 1 bolt on the back side of the enclosure



Step 3. Install the shock pads

Install the shock pads on both sides as outlined below.



Step 4. Install the rubber shock absorbing covers

Mount the rubber shock absorbing covers on both sides of the SATA hard drive, with the side of the cover with the lug close to the PCB.



Step 5. Close the enclosure and fasten the screws

3.2. SD Card Installation

Open the hard drive lock with the key and remove the hard drive sled, then remove the 4 screws holding the SIM card cover. The SD card slot is shown in the figure below. Since the SD card slot is close to the 3G module, to facilitate inserting and removing the SD card, it is recommended to remove the 3G module before inserting or removing the SD card.

Press the card and pull out the 3G module



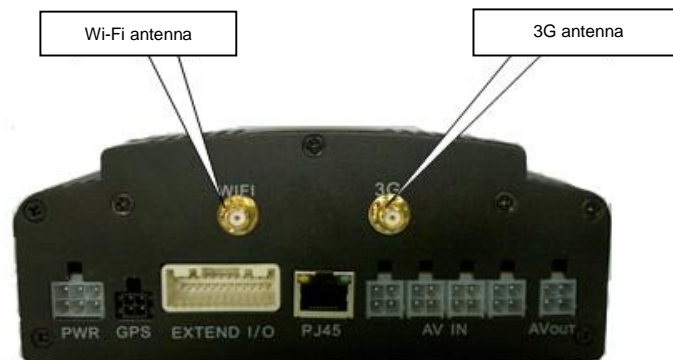
Remove the 3G module



Insert the SD card

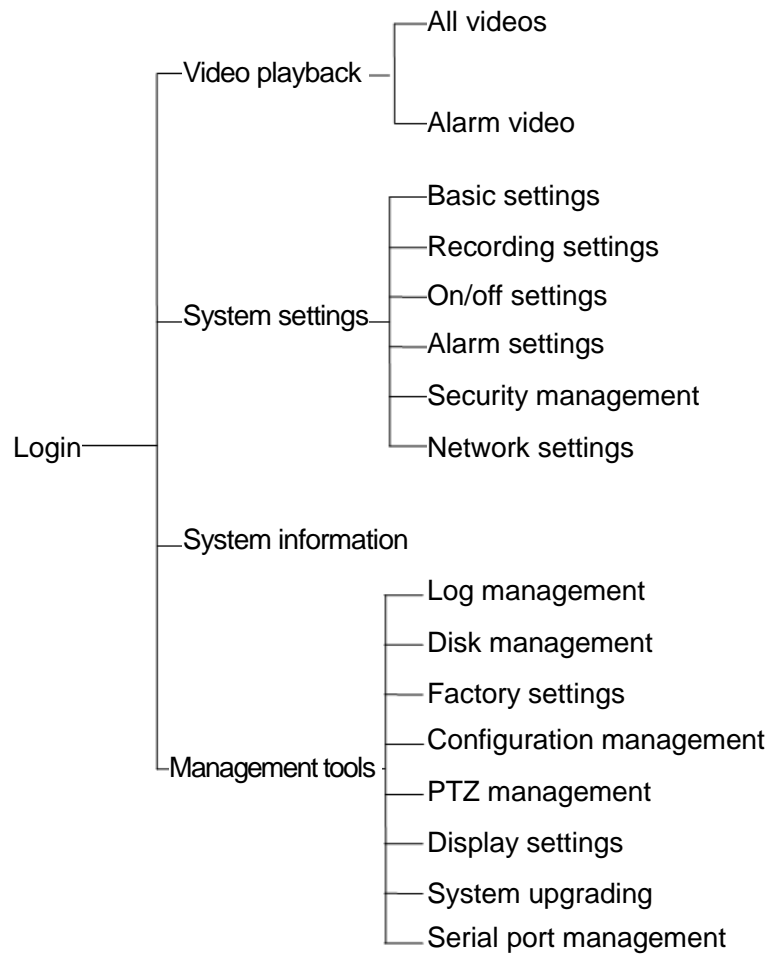
3.3. Antenna Installation

Connections for Wi-Fi and 3G antennas are equipped on the back panel of the device. For connection of corresponding antennas, please refer to the figure below:



4. OSD Menu Overview

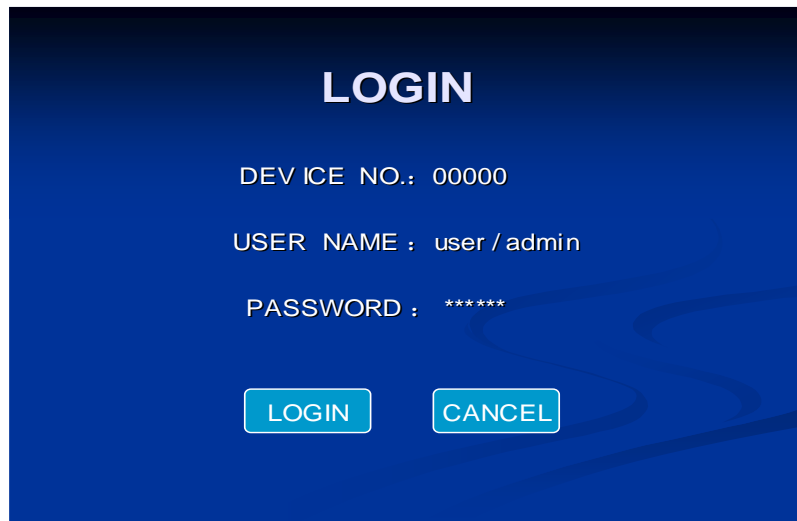
4.1. Menu Tree



Menu Structure

4.2. User Login

- Press Login on the remote, and enter password if configured (default admin password is 888888)



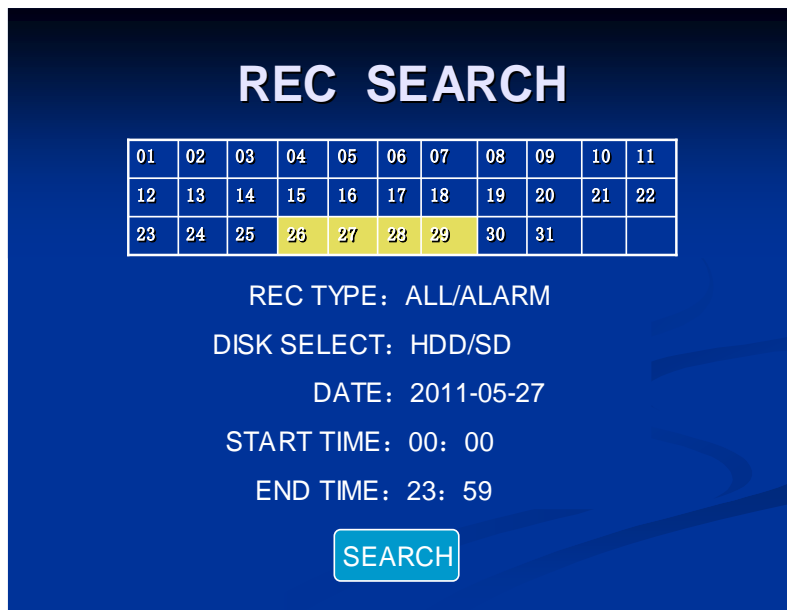
4.3. Main Menu

After login, you will be at the main menu consisting of: PLAYBACK, SYSTEM SET, SYSTEM INFO, MANAGE TOOL.



4.4. Video Playback

In the main menu, press the arrow keys to select the video to playback, and press [ENTER] to enter the REC SEARCH interface.



REC SEARCH

01	02	03	04	05	06	07	08	09	10	11
12	13	14	15	16	17	18	19	20	21	22
23	24	25	26	27	28	29	30	31		

REC TYPE: ALL/ALARM
 DISK SELECT: HDD/SD
 DATE: 2011-05-27
 START TIME: 00: 00
 END TIME: 23: 59

SEARCH

REC TYPE: Press [Enter] to select types to recall: All videos\Alarm video (default is all videos)

DISK SELECT: Press [Enter] to select disk: SD\HDD. (default is HDD)

DATE: Press the number keys to input the date. (default is current date)

START TIME: Press the number keys to input the time. (current is 00:00)

END TIME: Press the number keys to input the time. (default is 23:59)

SEARCH: Move the cursor to "search" and press [Enter].



SEARCH RESULT

DATE: 2011-05-27

TYPE	RES	START	END	CH	SIZE
Normal	D1	15: 30	16: 00	1	154M
Normal	D1	15: 30	16: 00	2	53M
Normal	CIF	15: 30	16: 00	3	100M
Normal	CIF	15: 30	16: 00	4	98M
Alarm	D1	16: 10	16: 12	1	7M
Alarm	D1	16: 10	16: 12	2	7M
Alarm	CIF	16: 10	16: 12	3	9M
Alarm	CIF	16: 10	16: 12	4	10M

FIRST **UP** **DOWN** **LAST**

- Press the arrow keys to select the video to be reviewed then press [ENTER] to play the video. Press [EXIT] to return to the previous menu.
- Use arrow keys to move from pages of results of the search.

4.5. System Setup

In the main menu, press the arrow keys to select the SYSTEM SETUP menu, and press [ENTER] to enter the following SYSTEM SETUP menu. The setup menu consists of the following submenus: BASE SET, REC SET, POWER SET, ALARM SET, SECURITY, NETWORK.



4.5.1. Basic Setup

This menu configures the identification parameters of the device.



Note: Do not modify the 'DEVICE NO.' field without first contacting Safety Track Support.

4.5.2. Record Setup

This menu is for settings of recording parameters. Do not modify these settings without first contacting Safety Track Support.

RECORD SETUP

SYSTEM: PAL/NTSC

RESOLUTION: D1/HD1/CIF

AUDIO : ON/OFF

TIME SLICE: 15/30/45/60 (M)

SD FUNCTION: NO REC/MRR REC/
LOST REC

RECORD MODE: AUTO/TIMED/
ALARM/MANUAL

BITRATE: D1 (2048/2000/1600/1400
/1200/1000/800/600) HD1 (1500/1300/1100
/900/800/700/600/500) CIF (1200/1000/800
/700/600/500/400/300)

OVERWRITE: NORMAL/NONE/ALL

ALARM DELAY: 30 (30~1800S)

CHANNEL	QUALITY	FRAME RATE	RECORD
CH1 (1~4)	1 (1~5)	25 (1~30)	ON/OFF

TIME LIST
SUB-STREAM
SAVE

4.5.3. Power Setup

Set on/off parameters.

POWER SETUP

POWER MODE: ACC / TIME

DELAY POWER OFF: ON/OFF

DELAY TIME: 5 (3~240) (M)

POWER ON TIME: HH:MM:SS

POWER OFF TIME: HH:MM:SS

SAVE

- On/off mode
Always set to ACC mode.
- Delayed off
This setting configures a delayed shutdown when switch power is lost.
- Delay time
The delay time can be set between 5 and 240 minutes
- Timed on time
Not Applicable
- Timed off time
Not Applicable

4.5.4. Alarm Setup

Set output parameters upon alarm.

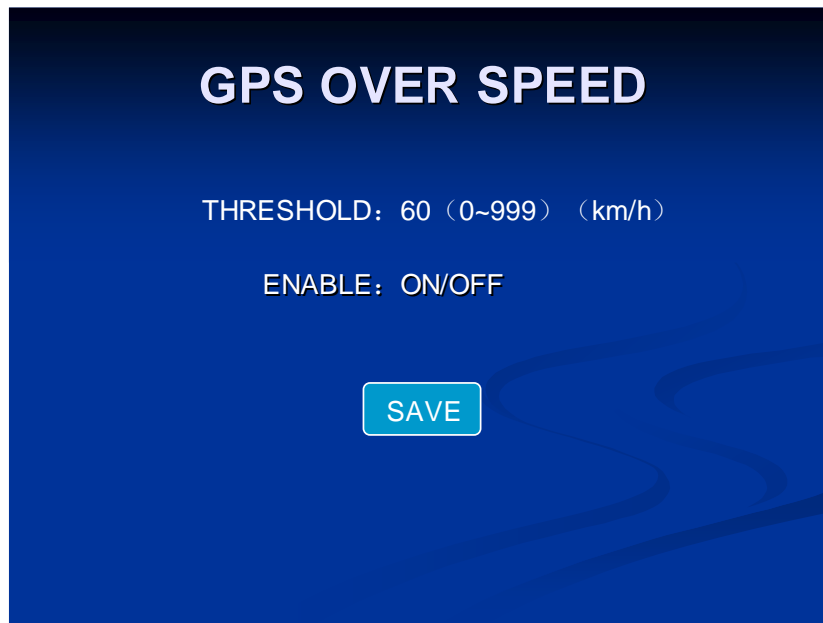
The screenshot shows the 'ALARM SETUP' screen with a table of settings. Below the table are four buttons: SAVE, SPEED, G-SENSOR, and MOVE DETECT.

INPUT	ENABLE	PWL	RECORD	FUNCTION
I /01	ON	HIGH	ON	LEFT/RIGHT
I /02	ON	HIGH	OFF	MIDDLE
I /03	ON	LOW	ON	BRAKE
I /04	OFF	LOW	OFF	FRONT
I /05	OFF	HIGH	ON	POSTERN
I /06	OFF	LOW	OFF	BACKING
OUTPUT	ENABLE	PWL		
RELAY OUTPUT	OFF	HIGH		

Buttons: SAVE, SPEED, G-SENSOR, MOVE DETECT

- Alarm input
Supports synchronous input of up to 6 channels of alarm.
 “Enable”: Sets whether to enable the input of that particular channel.
 “PWL”: Sets High/Low level input.
 “Record”: Sets recording options for alarm triggers.

■ GPS Overspeed



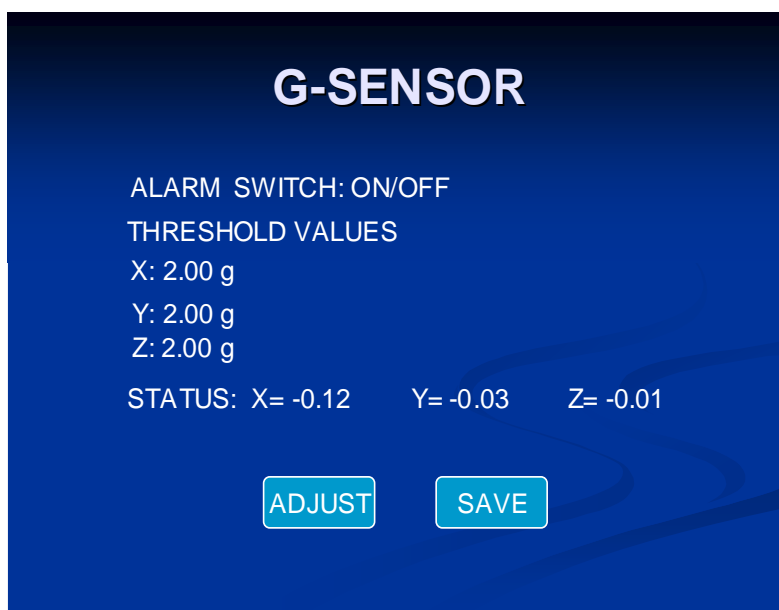
Threshold: 60km/h by default, adjustable within the range of 0~999. Press DEL to delete the original number and use numbers to enter new setting. Note: Only KM/H is supported at this time. For MPH, use calculator to translate to KM/H.

Enable: On/Off, press [ENTER] to input;

- On: When the speed of the GPS exceeds the threshold value, the alarm recording will be started and alarm logs will be recorded;
- Off: When the speed of the GPS exceeds the threshold value, neither the alarm recording nor the alarm logs will be started

Upon completion, press the Save button to save settings.

- Acceleration/Impacts/Hard Braking
- Move the cursor to “G-Sensor”, press [ENTER] to enter the following menu of G-Sensor settings:



“Threshold”: Set values of X, Y and Z directions within the range of 0.00g--9.99g, press DEL to delete the original number and use numbers to enter new setting. A good baseline for settings is 3.00g for each axis.

“Alarm Switch”: set whether to enable or disable G-sensor alarm, press [ENTER] to input.

- Alarm on: In the recording status, when any of the directions of X, Y and Z exceed the “Threshold”, the alarm recording and the alarm logs will be started.
- Alarm off: In the recording status, when any of the directions of X, Y and Z exceed the “Threshold”, neither the alarm recording nor the alarm logs will be started.

“Adjust”: This calibrates the accelerometer. Use this option when the vehicle is not moving.

Upon completion, press the Save button to save settings.

■ Motion Detection

This option is not supported at this time.



4.5.5. Security Setup

Set login passwords

■ Password

Set whether to enable the login password, and then press [ENTER] to input.

- On: When log in with the Admin password, Admin\User password can be set; When log in with the user password, only the User password can be set, press numeric keys to input, the passwords inputted twice should be consistent.
- Off: Password cannot be set. After entering the menu, one can directly enter the main menu without login.

Note: If there are multiple devices with the same power supply for recording, please set different password and device ID for each device so as to avoid disturbing other devices when operating one of them, the device ID may be modified in Basic Setup.

4.5.6. Network Setup

- Local setup

This setting should not be modified, as it is only used for LAN connections

- Center setup

This setting tells the unit how to talk back to the back-end to facilitate streaming and should not be modified except under the direction of Safety Track Support.

- 3G Setup

This setting tells the unit how to talk back to the back-end to facilitate streaming and should not be modified except under the direction of Safety Track Support.

3G SETUP

3G FN:	ON / OFF	TYPE:	WCDMA / EVDO / TD
LINK MODE:	NORMAL/	TRIGGER NO.1:	
	TRIGGER	TRIGGER NO.2:	
VOICE FN:	OFF/ON	CALL NO.1:	
		CALL NO.2:	
CENTER NO.:	*99# / #777 / *99***1#		
APN:	3gnet / ctnet / cmnet		
USER NAME:	card		
PASSWORD:	****		

SAVE

- Wi-Fi Setup

For Non-3G models, this will be set by Safety Track prior to shipment and should not be modified.

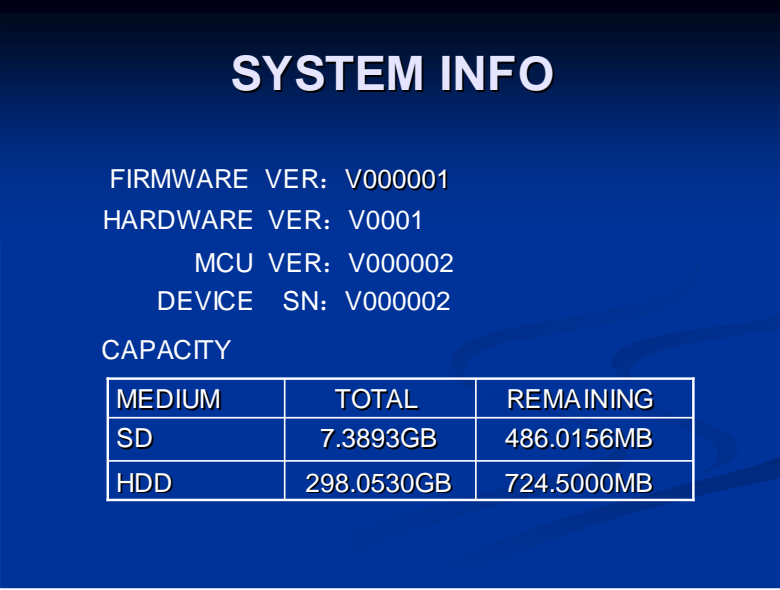
WIFI SETUP

WIFI:	ON / OFF
ENCRYPT:	ON / OFF
ENCRYPT TYPE:	WEP
IP:	192.168.000.192
GATEWAY:	192.168.000.001
SUB-MASK:	255.255.255.000
SSID:	WIFI
PASSWORD:	

SAVE

4.6. System Info

This menu shows vital information of the device and should only be accessed for troubleshooting purposes.



The screenshot shows the 'SYSTEM INFO' menu on a blue background. It displays various system details including firmware, hardware, MCU, and device versions, along with a table of storage capacity for SD and HDD media.

SYSTEM INFO		
FIRMWARE VER:	V000001	
HARDWARE VER:	V0001	
MCU VER:	V000002	
DEVICE SN:	V000002	
CAPACITY		
MEDIUM	TOTAL	REMAINING
SD	7.3893GB	486.0156MB
HDD	298.0530GB	724.5000MB

4.7. Management Tools

In the main menu, press the arrow keys to select Management Tools menu and press [ENTER] to enter the following menu. The Management Tools menu consists of Log Management, Disk Management, Default settings, Configuration Management, PTZ Management, OSD Settings, System Upgrade and Serial Port Management.



4.7.1. Log Management

The Log Management records events of startup and shutdown, GPS time correction, alarm moment, etc., including date, time and event name.

DATE	TIME	EVENT	NAME
11/05/27	15: 30: 25	alarm in	1
11/05/27	16: 10: 37	alarm in	2
11/05/27	17: 00: 35	power on	
11/05/27	17: 30: 56	alarm in	4

4.7.2. Disk Management

Used to format HDD or SD Card

DISK MANAGE

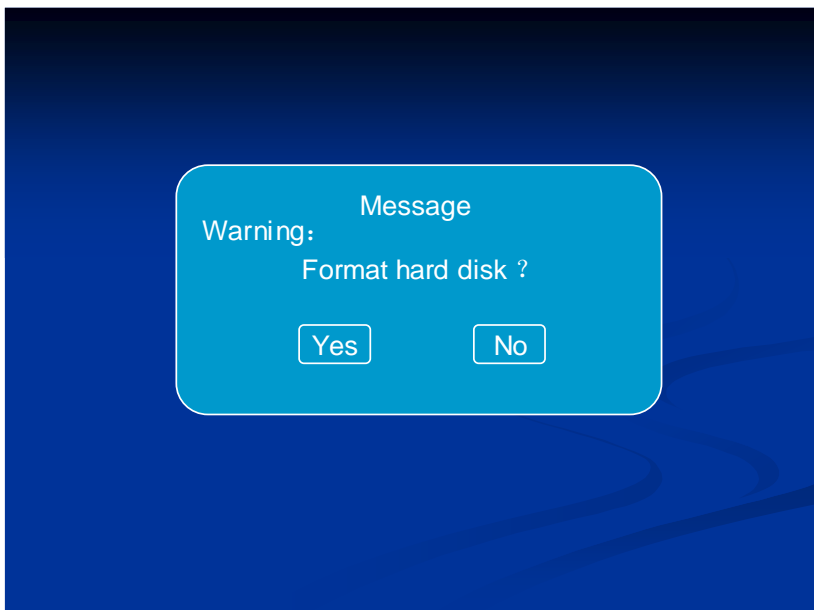
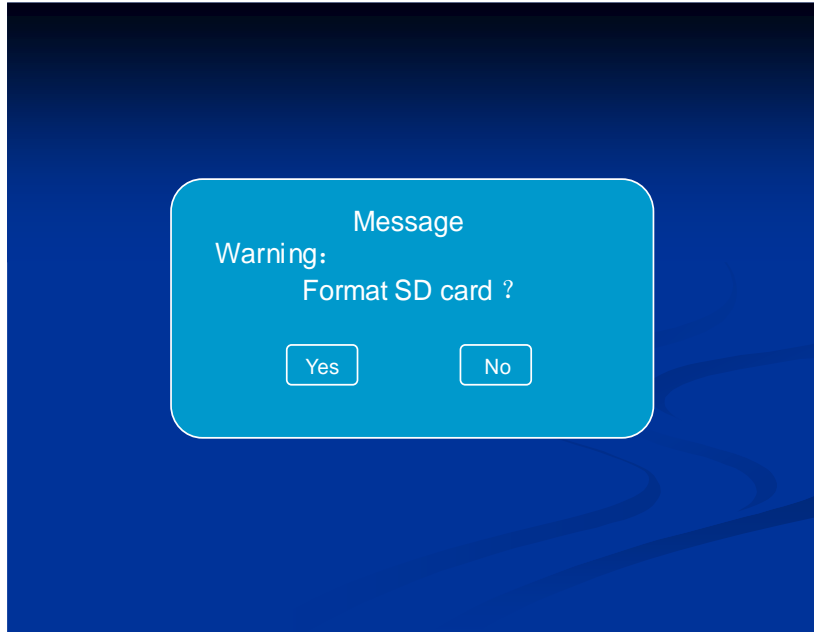
DISK FORMAT

DISK SELECT SD/HDD

CANCEL FORMAT

The data will lost against 'FORMAT', otherwise, please press 'CANCEL'.

- Disk Selection
Select SD or HDD, press [ENTER] for selection.
- Format Button
Select the Format Button and press [ENTER], the following window will pop up.

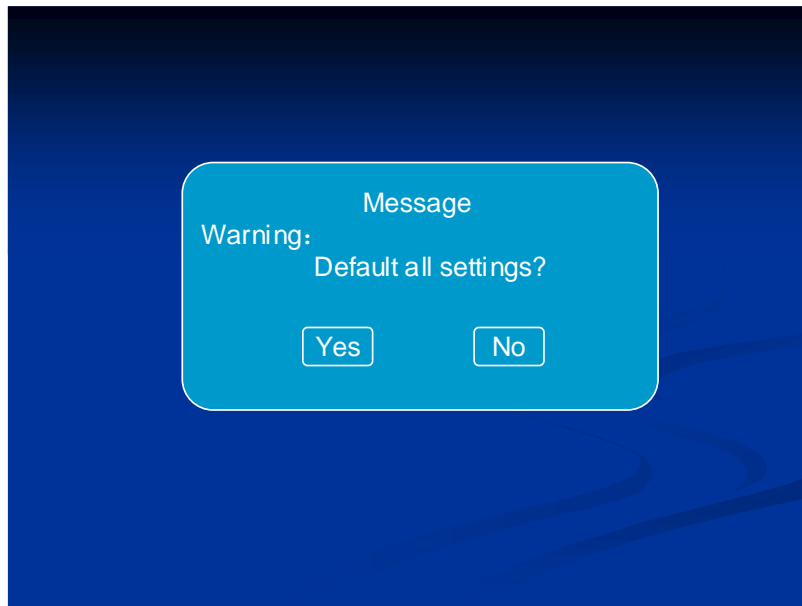


“Yes”: Start formatting the SD card or hard drive, press [ENTER] to input.

“No”: Cancel formatting and return to the Management Tools menu.

4.7.3. Factory Settings

This restores factory settings of the device, and the settings of the system will restore the default settings.



"Yes": Restore factory settings.

"No": Return to the Management Tools menu.

4.7.4. Configuration Management

Imports and exports configuration files.



4.7.5. PTZ Management

Not Used




The PTZ MANAGE screen has a dark blue background with a wavy pattern. At the top, the title 'PTZ MANAGE' is displayed in large white capital letters. Below the title, there are four columns for channel configuration: CHANNEL, ADDRESS, BAUDRATE, and PROTOCOL. Each column has a label and a value. The CHANNEL column shows 'CH1', 'CH2', 'CH3', and 'CH4'. The ADDRESS column shows '1 (0~255)' for each channel. The BAUDRATE column shows '4 CHANNEL (600/1200/2400/4800/9600/19200/38400/57600/115200)'. The PROTOCOL column shows '4 CHANNEL (Pelco__D/Pelco__P)'. At the bottom center, there is a light blue button with the word 'SAVE' in white capital letters.

CHANNEL:	CH1	CH2	CH3	CH4
ADDRESS:	1 (0~255)	1 (0~255)	1 (0~255)	1 (0~255)
BAUDRATE:	4 CHANNEL (600/1200/2400/4800/9600/19200/38400/57600/115200)			
PROTOCOL:	4 CHANNEL (Pelco__D/Pelco__P)			

SAVE

4.7.6. OSD Setup



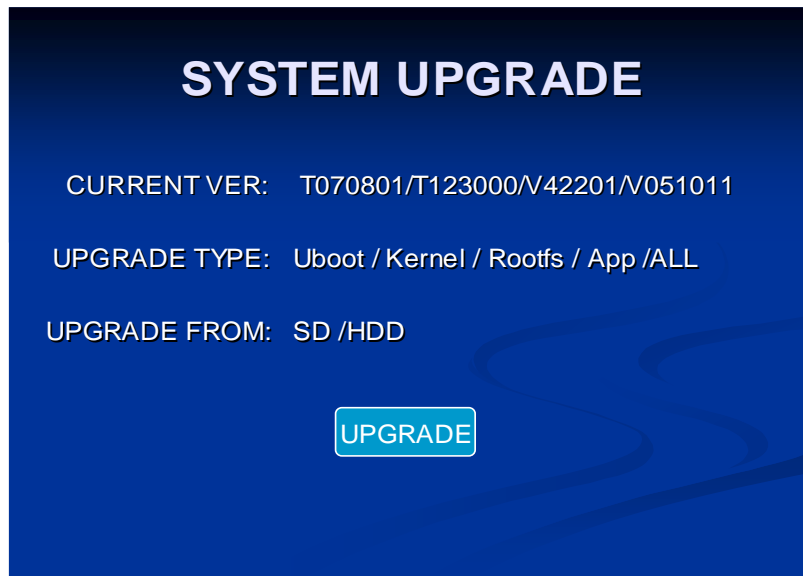
The OSD SETUP screen has a dark blue background with a wavy pattern. At the top, the title 'OSD SETUP' is displayed in large white capital letters. Below the title, there are two main sections: 'REAL TIME DISPLAY' and 'RECORD OVERLAY DISPLAY'. Each section has a 'TIME' option with 'YES/NO' choices. The 'RECORD OVERLAY DISPLAY' section also has 'VEHICLE NO' and 'GPS' options with 'YES/NO' choices. At the bottom center, there is a light blue button with the word 'SAVE' in white capital letters.

REAL TIME DISPLAY
TIME: YES/NO

RECORD OVERLAY DISPLAY
TIME: YES/NO
VEHICLE NO: YES/NO
GPS: YES/NO

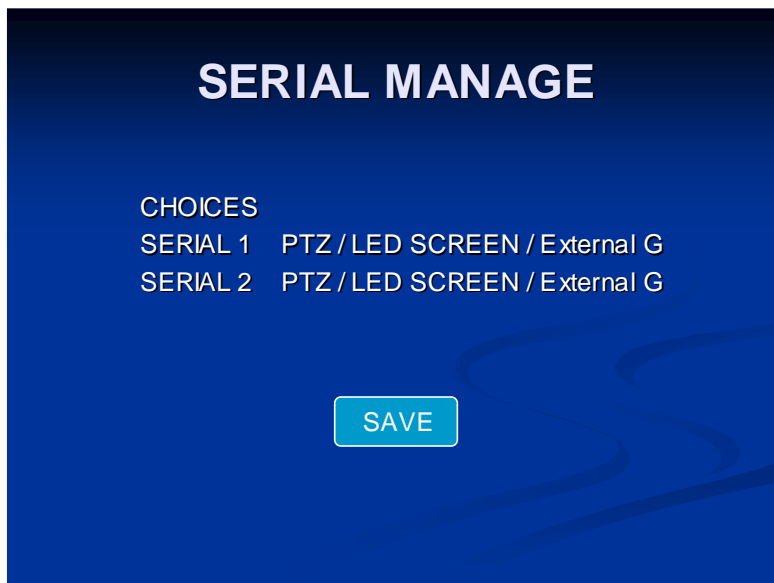
SAVE

4.7.7. System Upgrade



4.7.8. Serial Management

Not Used



4.8. Shortcuts Keys

4.8.1. F1 Status Menu

Press F1 with the remote controller, the video output display of the device will include the below parameters:

- Acceleration: X= -0.22g, Y= 0.31g, Z= -0.94g
- GPS module: No/Yes
- Longitude: 0/113°56. 4695 'E
- Latitude: 0/22°33. 3895 'N
- Speed: 0 KM/H
- Satellites detected: 0/12
- Altitude: 0/46M
- 3G module: No/Yes Wi-Fi module: No/Yes
- SIM: No/Yes Wi-Fi signal: 0 (55/97)
- Signal: 0/31 Wi-Fi online: FAIL/SUCCESSFUL
- Dial: FAIL /Successful
- Online: No/Yes

4.8.2. F2 and F3 Status Menu

Reserved for Future Use